STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH
Dedicated to protecting and improving the health and environment of the people of Colorado

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Roy Romer
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Patricia A. Nolan, MD, MPH
Executive Director

March 3, 1993

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Mr. Richard J. Schassburger
U. S. Department of Energy
Rocky Flats Office, Bldg 116
P.O. Box 928
Golden, Colorado 80402-0928

RE: Pond Water Management IM/IRA Information

Dear Mr. Schassburger,

The Colorado Department of Health, Hazardous Materials and Waste Management Division (the Division), is forwarding the attached information for your use in writing and scoping the Pond Water Management IM/IRA. Additionally, this information is important for any interim water management implemented prior to the IM/IRA.

If you have any questions regarding these matters, please call Joe Schieffelin at 692-3356 or Harlen Ainscough at 692-3337.

Sincerely,

Gary W. Baughman

Gary W. Baughman, Chief
Facilities Section
Hazardous Waste Control Program

cc: Martin Hestmark, EPA
Norma Casteneda, DOE
Gail Hill, DOE

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Pond Water Management IM/IRA

RCRA Implications:

The Division would like to extend the following information as a strategy for RCRA compliance in the Pond Water Management IM/IRA. This information is also useful for water management prior to implementation of the IM/IRA. Please refer to the attached flowchart.

Boxes 1 and 2: At any time, on an ongoing basis, that RFP identifies a need to transfer water between, and/or spray evaporate water in, any of the ponds, it will be necessary to conduct a hazardous waste determination and a hazardous constituent characterization. The requirements of a hazardous waste determination are presented in the Colorado Hazardous Waste Regulations (CHWR), Section 262.11. If "process" and/or historical knowledge is not sufficient to complete a hazardous waste determination, an analytical determination of the water for the hazardous waste chemicals is required. A hazardous constituent characterization would be an analysis for the chemicals listed in Appendix VIII to CHWR, Section 261 (rather than a comprehensive Appendix VIII analysis, an appropriate subset from Appendix VIII including the suspected contaminant classes can be chosen). Appendix VIII includes all the chemicals that are listed wastes and adds the major degradation products of those chemicals. Therefore, the hazardous waste determination and the hazardous constituent characterization are very similar analytically and can be combined to the extent possible. These analyses must be completed for a representative sample of the affected water prior to each transfer and/or spray evaporation event.

Box 3: Once analytical and/or historical information is available, the following criteria can be applied to the water:

a) analysis reveals no detections for organic compounds except those that are naturally occurring using standard analytical methods and
b) analysis reveals detections less than or equal to background levels plus two standard deviations for inorganic and naturally occurring organic compounds using standard analytical methods and
c) water does not exhibit any characteristic of a hazardous waste, or exceed any of the TCLP limits, as defined in CHWR

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Section 261, Subpart C and

d) water does not contain any listed hazardous wastes, as defined in CHWR Section 261, Subpart D.

If the water fails any of these items, further consideration is needed. However, if no hazardous wastes are present (items [c] and [d]) and no hazardous constituents are present above the limits presented in items [a] and [b], then the water can be transferred or spray evaporated (Box 5) with no prior treatment.

Boxes 4 and 6: Any environmental media contaminated by hazardous waste, regardless of concentration levels, requires management as a hazardous waste until the media no longer contains the waste (see attached EPA memo). Additionally, any environmental media containing hazardous constituents, regardless of concentration, should be managed as a hazardous waste. To determine when, or at what levels, contaminated environmental media no longer "contain" the hazardous waste or constituents, CDH has employed both a risk assessment approach and use of existing promulgated standards. The risk assessment approach involves quantitatively determining that the levels of contaminants in the media:

1) present a risk to human health less than or equal to $1X10^{-6}$, using a risk analysis procedure approved by the Director, for carcinogenic compounds and
2) present a Hazard Quotient less than 1.0 for non-carcinogenic compounds.

To demonstrate compliance with these items, the Division requires that a facility apply the risk assessment concepts outlined in Federal Register, Volume 52, Number 53, Thursday, March 19, 1987, pp. 8704 - 8709. This Federal Register requires that a facility must evaluate whether a threat to human health or the environment exists from **direct** exposure to hazardous media in the unit. Direct exposure is further defined to be exposure at or within the unit boundary to **all** routes of exposure (ingestion, inhalation, dermal contact) from any potentially contaminated media. No attenuation or dilution of the hazardous constituents can be assumed to occur before the constituents reach exposure points; arguments relying on fate and transport calculations will not be accepted.

Risk levels are calculated by assuming worst case direct exposure to the most sensitive receptors, including ecological receptors and resident, on-site children and adults (future on-site residential use

must be quantitatively considered with direct exposure to ground water ingestion being specifically called for in the above referenced Federal Register). Each pathway must be evaluated with the total risk from the site being the sum of the risks for each chemical constituent considered in each pathway for each media.

Materials that have been determined to contain amounts of listed hazardous waste and/or hazardous constituents that exceed a $1X10^{-6}$ carcinogenic risk or an Rfd hazard quotient of 1.0 present an unacceptable risk to human health and must be managed as a hazardous waste or remedied appropriately. Therefore, appropriate treatment would be necessary before transfer or spray evaporation occurred (Boxes 7 and 9). The Division recognizes that treatment may not be possible prior to implementation of the IM/IRA.

This risk assessment can be a very time consuming and costly undertaking further complicated by the fact that, if relevant toxicity information is not available for a constituent in question, a risk assessment can not be completed and the contaminated material must continue to be managed.

Alternatively, therefore, for the media of ground and surface water, comparisons of the contaminant levels with available water quality standards is another option to determine if the media "contains" hazardous waste or constituents. For this comparison, CDH applies, for each chemical, the most stringent of the following:

a) applicable Colorado water quality standards
b) SDWA standards
c) CWA standards

If the standards comparison approach is used, any surface or ground water whose contaminant levels exceeded the most stringent of the above standards must be managed as a hazardous waste or remedied (treated) appropriately. Therefore, appropriate treatment would be necessary before transfer or spray evaporation occurred (Boxes 7 and 9).

Box 8: If the contaminants levels are at or below the acceptable risk levels and/or the appropriate standards, the media is considered to no longer "contain" hazardous waste or constituents. Therefore, the water can be transferred or spray evaporated with no prior treatment.

F039 Waste Discussion: It is already known that listed waste F039 (Multisource leachate) is contained in, at least, pond B2 and the landfill pond. Therefore, the entire contents of these ponds are also considered F039 waste. It is probable that the individual hazardous constituents above background in the F039 waste which is in these ponds can also be traced back to additional specific source hazardous waste listings. For example, pond B2 contains PCE (Tetrachloroethene) at detectable levels. This PCE is entering the pond on a continuing low-level basis as an F039 constituent. It is probably coming from the east trenches where it was disposed as a discarded chemical product, which has a U210 listing.

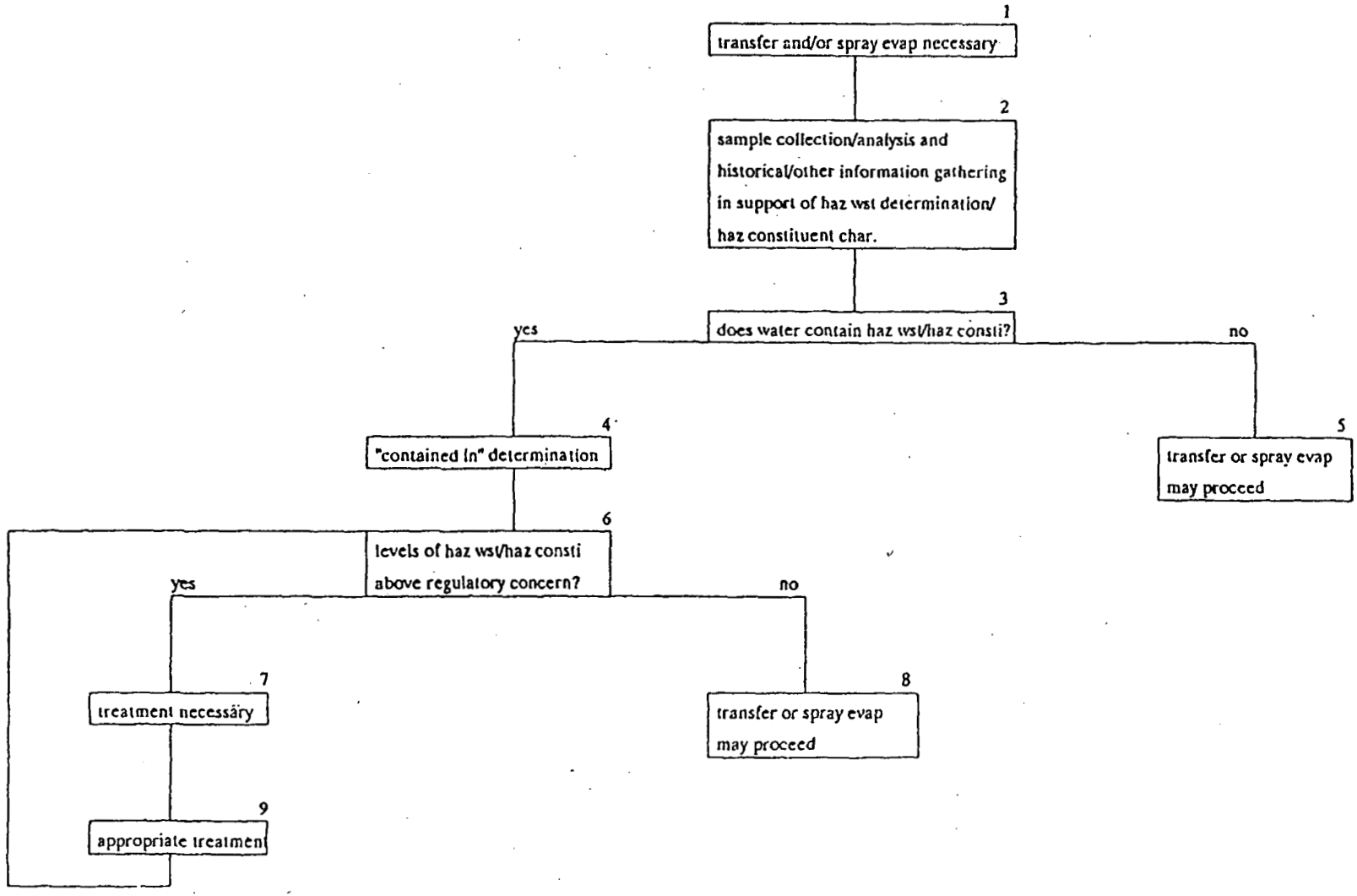
It is important to note that the leachate leaving the landfill is F039 waste. The water in the landfill pond contains F039 waste. This distinction is important for two reasons:

1) Continuing release of F039 waste from the landfill to an improperly designed surface impoundment is unacceptable. For this reason, the IM/IRA must include, to the extent practicable, collection and treatment of the leachate. Any migrating leachate in the ground or surface water not addressed by this IM/IRA will be addressed in the final remedy.

2) The transfer or spray evaporation of pond water that contains F039 waste is a two-level hazardous waste issue. The first and more important issue is that transfer/spraying is disposal/treatment of a hazardous waste. The second-level issue is that transfer of water containing F039 waste is improper placement of waste under the Land Disposal Restrictions (LDR). Since the LDR issue is not the fundamental problem, we will no longer consider it as a driver within the IM/IRA. (Please note that the tables from Section 268 referenced by EG&G staff at the last IM/IRA scoping meeting do not present treatment standards for uncontrolled release of F039 waste and currently do not play a part in the previously mentioned "contained in" determination. Rather, the tables present the maximum contaminant levels allowed in F039 waste prior to land disposal as defined in Part 268.2. Therefore, they are not applicable to this IM/IRA.)

POND WATER MANAGEMENT IM/IRA

RCRA and CHWR Compliance Flowchart



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 26 1991

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

John E. Ely
Enforcement Director
Virginia Department of Waste Management
101 North 14th Street
Richmond, Virginia 23219

Dear Mr. Ely:

At the request of Carlyle C. Ring, Vice President and General Counsel of Atlantic Research Corporation, I am sending this letter to summarize the Agency's current position on the "contained-in" interpretative policy. It is my understanding, based upon Mr. Ring's letter, that there was some question as to whether the "contained-in" interpretative policy applies to all environmental media or only to ground water. Mr. Ring's letter also suggested that a letter from my Office would help resolve this matter. I hope this letter will answer this question and further clarify the policy. I have also enclosed, for your information, a memorandum from Jonathan Cannon to Thomas Jorling dated June 19, 1989. I hope that you will find these helpful.

The "contained-in" interpretation addresses environmental media (i.e., ground water, soil, and sediment) contaminated with RCRA listed hazardous waste. Our federal regulations at 40 CFR Part 261.3 identify hazardous wastes. Among other things, these regulations state that a solid waste mixed with a hazardous waste is a hazardous waste. However, these regulations generally do not specifically address environmental media, which are not solid wastes, mixed with listed hazardous waste. The Agency's position continues to be that mixtures of environmental media and listed hazardous waste (i.e., contaminated ground water, contaminated soil, and contaminated sediments) must be managed as if they were hazardous waste. This position is known as the "contained-in" policy. EPA's application of the "contained-in" policy to contaminated media was upheld by the D.C. Circuit Court of Appeals in Chemical Waste Management, Inc. v. U.S. EPA, 869 F.2d 1526 (D.C. Cir. 1989).

Consistent with this approach, the Agency further interprets the regulations to mean that environmental media contaminated with listed hazardous waste must be managed as if they were hazardous waste until the media no longer contain the listed hazardous waste (i.e., until decontaminated), or are delisted. To date, the Agency has not issued any definitive guidance as to

when, or at what levels, environmental media contaminated with listed hazardous waste no longer contain that hazardous waste. Until such guidance is issued, the Regions or authorized States may determine these levels on a case-specific basis. However, as you know, States that are authorized to implement the RCRA hazardous waste program, as Virginia is, are not bound by EPA's interpretation of the Federal regulations. Although they usually follow Federal interpretations, authorized States may interpret their own regulations more strictly than EPA interprets the Federal regulations.

Related to making a determination as to when contaminated media no longer contains listed hazardous waste, we suggest that a risk assessment approach be used that addresses the public health and environmental impacts of hazardous constituents remaining in the treated soils. And as stated above, the authorized State could apply more stringent standards or criteria for contaminated environmental media than those recommended by the Federal EPA if the authorized state determined it to be appropriate. [Note: However, this approach does not apply to residuals from the treatment of listed hazardous waste or mixtures of solid waste with listed hazardous waste under our current regulations, which must be delisted.]

I hope that this letter will be helpful to you in establishing and implementing Virginia's hazardous waste policies on related issues. Should you have any questions concerning EPA's "contained-in" interpretative policy, please contact Steve Cochran, Acting Chief of the Waste Identification Branch, at (202) 382-4770.

Sincerely yours,

Sylvia K. Lowrance
Director
Office of Solid Waste

cc: C. Ring
D. Freedman

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